

lines along which research is proceeding most actively at the present time, special stress being laid upon those aspects of the subject which are not as yet fully treated in the smaller text-books.

The first four chapters deal with a general survey of the earth's surface, its mountains and ocean depths, the formation of its hills and valleys due to atmospheric agents, running water and ice, and the effects of climate on the distribution of other phenomena on the surface of the globe. In the successive chapters the author describes the three chief zones of vegetation, the Mediterranean scrub land, the temperate forest zone, and the steppe or pasture land, and that as each of these is determined by climate, each again has special types of cultivated plants and domesticated animals.

"It is interesting to note," adds the author, "what cannot be a pure coincidence [and yet may it not be so?], that in Europe three races of men exist, which show a certain rough correspondence to the three zones of vegetation. The Mediterranean type of vegetation and climate is associated" with the Mediterranean race. . . . "The characteristic inhabitants of the temperate forest region of Europe are members of the race called Teutonic or Nordic . . . the steppe and pasture lands . . . tend to be occupied by a third race . . . to which the . . . name of Alpine has been given."

The penultimate chapter is devoted to the races of Europe and their origin, and the last to the distribution of minerals and the localisation of industries and of towns. "Modern Geography" is a suggestive book.

Although the space at our disposal precludes a detailed notice of these volumes, we can warmly and conscientiously recommend them to those interested in the subjects with which they deal. All three are provided with full indexes, and "The Evolution of Plants" has besides an excellent bibliography of the most important works on palæobotany.

OUR BOOK SHELF.

Medical Science of To-day: a Popular Account of the More Recent Developments in Medicine and Surgery. By Dr. Willmott Evans. Pp. 324. (London: Seeley, Service, and Co., Ltd., 1912.) Price 5s. net.

THIS is a very delightful book. None of the natural sciences has greater wonders to tell than medical science; none touches more nearly our admiration of good work slowly brought to success. Dr. Willmott Evans is an excellent interpreter; he understands the art of freeing the wonder of the discovery itself from the wrappings of long words put round it by the doctors; he makes the reader feel the intense human significance of the many facts on which the present fabric of medicine and surgery is founded and built; and his book ought to be very widely read and remembered.

Of course, with such an "imperial theme," it was not possible for him to say all that ought to be said. The embarrassment of riches left him only a paragraph or two for methods each deserving a chapter. But he ought to have found room to say more about the tremendous influence of the experimental method in medical science. For instance, his mention of brain-surgery does not do justice to the experimental study of cerebral localisation; and the same fault occurs in his chapter on organo-therapy. And, of course, there are omissions of less importance; thus

he speaks of yellow fever without naming Walter Reed, and he describes myxedema without giving photographs of cases before and after thyroid treatment. He might with advantage have left out the chapters or subchapters on patent medicines, idiosyncrasies, and malingering; the chapters on legal medicine also want thinning.

The one grave defect in the book is the overshadowing of methods by results; he shows us the thing made, not the thing in the making. Still, he has written a book which is excellent reading; he plainly has enjoyed writing it, and it gives a faithful and valuable account of the modern science and art of medicine, surgery, and preventive medicine.

Climatic Control. By L. C. W. Bonacina. Pp. viii+167. (London: A. and C. Black, 1911.) Price 2s.

WORKS on climatology and articles in meteorological text-books treating of that subject abound in various forms, but that there is still room for others dealing with different aspects of this important question is shown by the interesting and useful little volume now under review. It is published as one of the series of "Black's School Geography," and, being intended primarily for British students, prominence is given to the climate of this country, but that of other "well-known lands," selected as representative of the various zones and regions, is considered at some length.

In an instructive chapter on the general principles of climatology, the factors which produce variations in different parts of the world—e.g. latitude, altitude, prevailing winds, &c.—are separately discussed, and this is followed by chapters (1) on the types of land and the effect of the prime elements of light, heat and moisture, the distribution of vegetation being taken as a rough criterion of the climatic variations; and (2) the influence of climate upon man. The whole of these various aspects are treated in a manner that cannot fail to attract the attention of students, and to induce them to pursue the subject further. The last chapter deals with meteorology and is intended for more advanced students. This chapter, like those preceding it, exhibits an intimate knowledge of the subject, and we regret that it was found necessary, for lack of space, to omit questions relating to atmospheric electricity—e.g. thunderstorms, &c.—and to optical phenomena.

The effect of the rotation of the earth on the circulation of the air and on the behaviour of cyclones and anticyclones and many other questions sometimes presenting difficulty to students are clearly explained. A few well-chosen synoptic charts, recently published by the Meteorological Office, are added to explain some of the principal types of weather.

An Introduction to Chemical Theory. By Dr. A. Scott, F.R.S. Second edition. Pp. viii+272. (London: A. and C. Black, 1911.) Price 5s. net.

THE first edition of this book was published twenty years ago, just as the "new" physical chemistry was flowing into this country and gaining admission to lecture courses and text-books. It was in a way the last of its race, and it still retains in the new edition a marked mid-Victorian flavour. This is not said in disparagement; indeed, the restraint shown by the author on the more speculative side of theoretical chemistry is a reminder of what in some respects were better days.

The distinction between chemical philosophy, general chemistry, and physical chemistry has become very vague, but Dr. Scott's book may be described as dealing rather with chemical philosophy than physical chemistry, and in that character it has some distinctive features which may give it a place in the

student's armoury. Such, for example, are the two chapters on the classification of compounds.

The treatment throughout is simple and lucid, and there is nothing that is likely to puzzle or mystify a reader. The contents will give him a good, useful store of information relating to the theoretical side of chemistry, though it will be meagre on the topics which have come to the front during the last twenty years, and to which, in a mere revision, it has scarcely been possible to do justice. In some cases the faults pass beyond those of omission, as in the confusion between dissociation and hydrolysis on p. 172, the account of "palladium hydride" on p. 171 and the definition of cryohydrates on p. 255. A. S.

Marvels of the Universe. A Popular Work on the Marvels of the Heavens, the Earth, Plant Life, Animal Life, the Mighty Deep. By various authors. In about twenty-four fortnightly parts. Part i., pp. 48. Part ii., pp. 48. (London: Hutchinson and Co., n.d.) Price 7d. net each part.

Of the attractiveness of this serial publication it would be difficult to write too highly. Each part contains four full-page illustrations in colour, remarkable alike for their beauty and accuracy, and a profusion of excellent pictures in black and white, most of which are from photographs.

The contributors are well-qualified authorities on the subjects they have undertaken, and what they have written is appropriate to the work. The selection of topics has been guided entirely by what is likely to arrest the attention of the non-scientific general reader, with the result that instead of an orderly introduction to science, we have a series of short, bright views of some of the wonders of nature, arranged in no logical sequence, but partaking of the character of a scientific scrap-book, using the term to express disjointedness rather than depreciation.

Unrelated as the articles are, they may serve a very useful purpose and succeed in attracting readers to the more serious study of some science in which they will be led themselves to observe and record what is happening in the world around them, as well as to take an interest in the explorations of others.

LETTERS TO THE EDITOR.

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The Scientific Misappropriation of Scientific Terms.

WHILE fully sympathising with Prof. Gregory in his condemnation of the scientific misappropriation of popular terms, and, indeed, objecting to the scientific appropriation of such terms where it would be better to employ a universally intelligible technical language, still, it seems to me that even more deserving of condemnation is the misappropriation by one group of scientific workers of the scientific terms used by another group. This procedure is the more objectionable when the two groups of workers are in adjoining fields. It does not greatly hurt anyone that an astronomer should mean by an "asteroid" something quite different from that which a zoologist means; but it does matter when one biologist uses a term in a different sense from another biologist.

Of late years some of us have felt driven to protest against Prof. H. de Vries's use of the term "mutation" in a sense differing in an apparently trivial, yet philosophically important, way from the use of the term by its original inventor—the palæontologist Waagen. Now we find the followers of Prof. de Vries, notably Prof. Johanssen, robbing the systematic biologists of their term "genotype." First proposed by Prof. C. Schuchert in

1897, this term has come into very general use to denote the type-species of a genus. There has been in the past so much confusion between the different senses of the word "type," and this confusion has given rise to so much regrettable confusion of thought, that this latest malappropriation should only need pointing out to be at once stopped. Unfortunately, this simple action has not had the desired effect, and therefore I am impelled to make a protest in your widely read pages. F. A. BATHER.

Wimbledon, November 2.

The Electro-vegetometer.

EXPERIMENTS with electricity as a stimulant to plant growth were made with alleged success 165 years ago, when Mr. Maimbray, of Edinburgh, electrified two myrtles throughout October, 1746, for several hours a day, with the consequence that next summer they blossomed sooner than their neighbours (Priestley's "History of Electricity," part viii., sec. 4).

Shortly after this the Abbé Nollet made similar experiments with electrified seeds in pots, and claimed equally successful results. M. Achar, of Berlin, and other independent observers confirmed the experiments; and the beneficial effect of electrification on plant life was almost an accepted discovery when a Dr. Ingenhousz, after exhaustive experiments, completely refuted all the conclusions hitherto arrived at, and proved that the only effect of electrification was to hinder plant life!

Dr. Carmoy and the Abbé Ormoy later resumed the investigation, and testified to favourable results.

Next the Abbé Berthelon reconciled these divergent conclusions by announcing that electricity in a moderate application was beneficial, but could be applied in excess with harmful results; and he advocated as the safest method the utilisation of atmospheric electricity, which he said rarely rose to a strength injurious to the most delicate plant. He published a suggestion, recently credited by Sir William Ramsay as a new and ingenious theory of Sir Oliver Lodge's, that the pointed leaves of plants acted as conductors of atmospheric electricity, and were an important factor in the prolific vegetation of forests.

The Abbé Berthelon, who utilised both natural and artificial electrification, devised what he called the "electro-vegetometer," which consisted of an insulated series of sharp iron points projecting vertically upwards at a mast-head and connected by chains with similar iron points pointing downwards just over the plants to be experimented on. He states that "the happiest effects were perceived, viz. different plants, herbs, and fruits in greater forwardness than usual, more multiplied, and of better quality."

Until lately all these alleged successes were supposed to have been imaginary; and the question is, Will the recent experiments prove that there was more in the earlier ones than has been supposed, or will the present trials turn out to be, with their predecessors, further examples of myths of science, like the Blondlot rays and Mrs. Somerville's supposed discovery of a magnetising power in solar light? CHARLES E. BENHAM.

Colchester, November 5.

November Meteor-showers.

THE early part of November does not present anything very noteworthy as regards meteoric phenomena, which may be said to begin about November 9, the following being the principal meteor-showers of the month:—

Epoch November 9, 6h. (G.M.T.), first order of magnitude. Principal maximum, November 11, 0h. 30m.; secondary maxima, November 9, 11h. 50m., and November 10, 10h. 40m.

Epoch November 10, 15h. 30m., twenty-second order of magnitude. Principal maximum, November 11, 11h. 30m.; secondary maxima, November 11, 19h. 20m., and November 12, 7h. 40m.

Epoch November 13, 16h., thirtieth order of magnitude. Principal maximum, November 14, 22h. 50m.; secondary maxima, November 15, 9h. 30m., and November 16, 13h. 15m. and 17h. 30m.

Epoch November 16, 10h., thirteenth order of magnitude. Principal maximum, November 15, 21h. 10m.; secondary maximum, November 15, 7h. 15m.